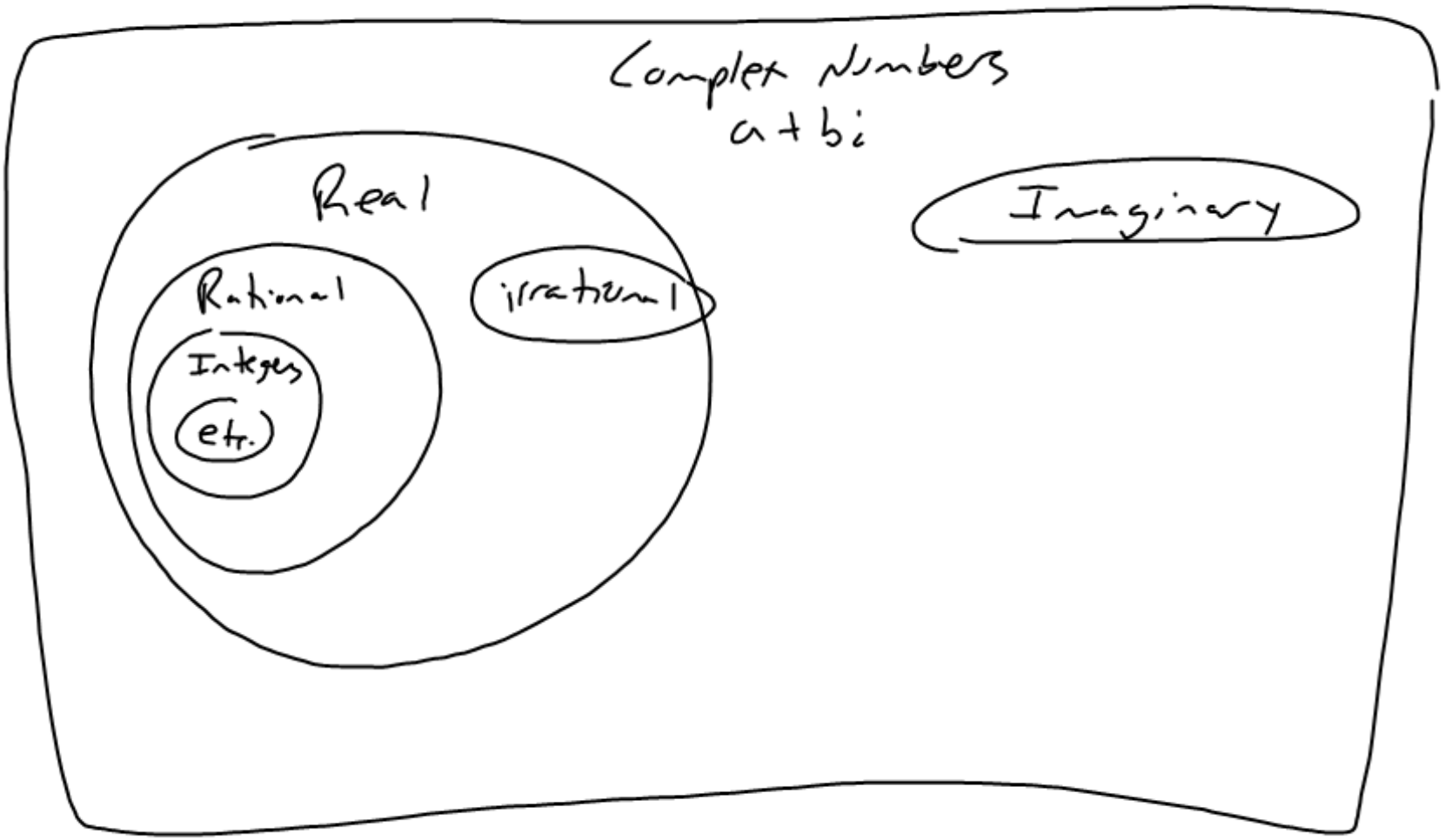
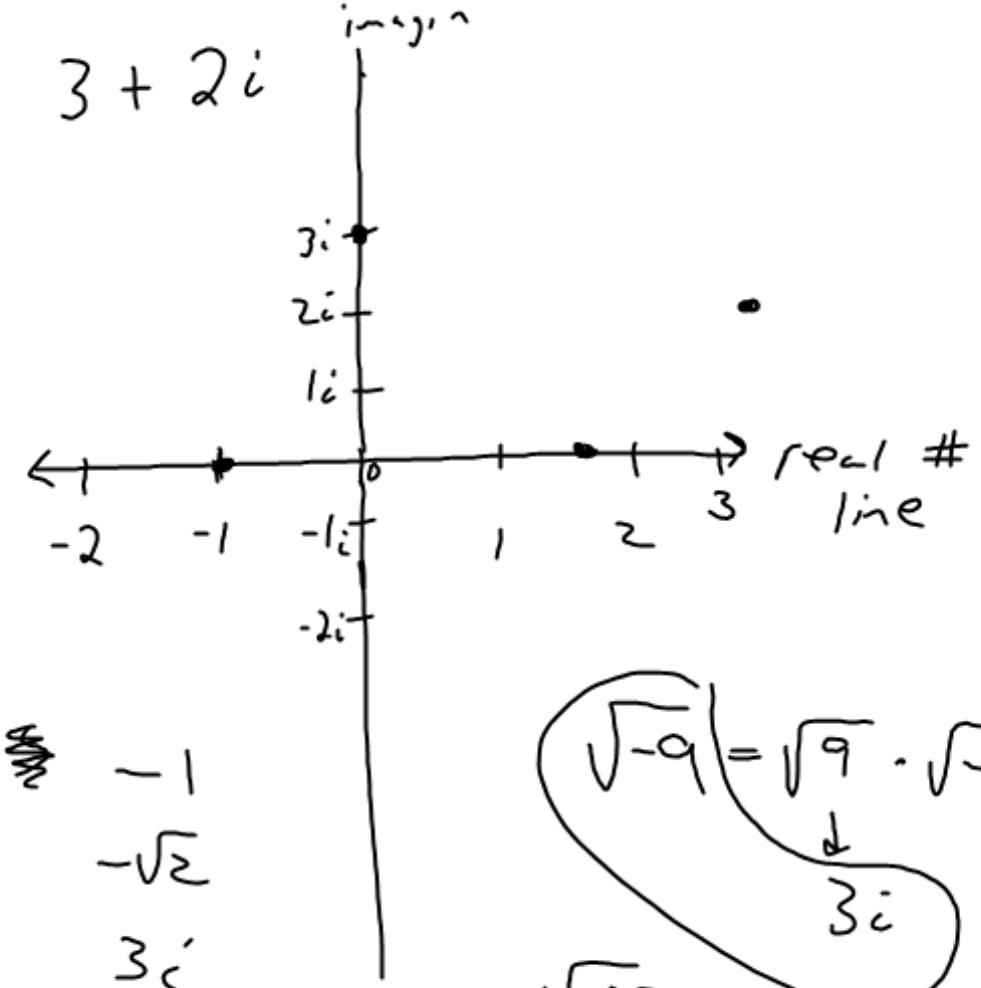

Complex Numbers
a + bi
Real
Rational
Integers
etc.
irrational
Imaginary

$3 + 2i$



-1

$-\sqrt{2}$

$3i$

$\sqrt{-9} = \sqrt{9} \cdot \sqrt{-1}$

$3i$

$\sqrt{-25} = 5i$

imaginary

$x^2 + 1 = 0$

$-1 \quad -1$

$\sqrt{x^2} = \sqrt{-1}$

$x = \pm\sqrt{-1}$

$\sqrt{-1} = i$

$\sqrt{-1} \cdot \sqrt{-1} = -1$

$i^2 = -1$

Equality

$(a + bi) = 5 + 3i$

$a = 5$

$b = 3$

Addition + subtraction

$(3 + 2i) + (-5 + i) = -2 + 3i$

$(7 + 2i) - (3 + 5i) = 4 - 3i$

multiplication

$(3x + 2)(2x - 1)$

$6x^2 + x - 2$

$(2 - i)(4 + 3i)$

$8 + 6i - 4i - 3i^2$ ($i^2 = -1$)

$8 + 2i + 3$

$11 + 2i$

@ $(3+2i)(5-3i) = 15+i+6 = \boxed{21+i}$

☆ Conjugate pair

ⓑ $(3+2i)(3-2i) = 9-6i+6i-4i^2 \boxed{= 13}$

ⓒ $(a+bi)(c+di) = ac+adi+bci-bd$

$$\frac{\frac{1}{4}}{\frac{2}{3}} \Rightarrow \frac{1}{4} \cdot \frac{3}{2} = \frac{3}{8}$$

$$\frac{3}{\sqrt{2}} \Rightarrow \frac{3\sqrt{2}}{2}$$

$$\frac{2+3i}{4-2i}$$ request for ÷, write in standard form $a+bi$

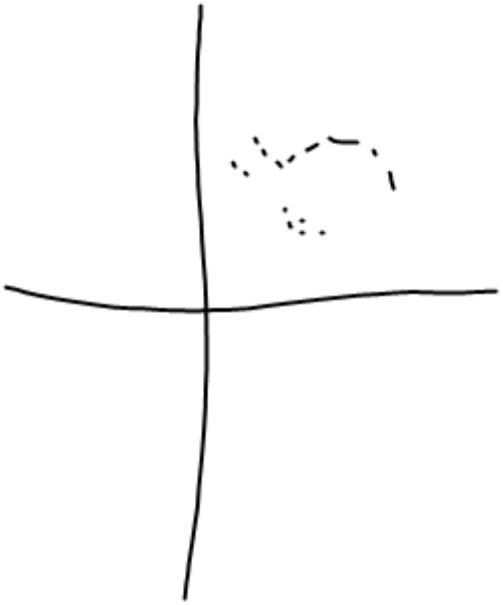
$$\frac{2+3i}{4-2i} \cdot \frac{4+2i}{4+2i} = \frac{8+16i+6i^2}{16-4i^2}$$

$$= \frac{2+16i}{20} = \boxed{\frac{1}{10} + \frac{4}{5}i}$$

p. 131

C = some imaginary #

$C + C^2 + [C+C^2]^2 + C +$



Sect. 2.4

#1-5 (vocab)

#1-4, 5, 6, 11, 15-17, 25, 26, 29, 30, 31, 34, 37-41,
47, 50, 65, 67-72 (4)